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INTERNATIONAL TRAFFIC IN ARMS AND AMMUNITION

by

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with the aid of the Research Staff of the Foreign Policy Association

IN at least two, and possibly three, international conflicts during the past year the efforts of peace agencies have been hampered by the activities of armament manufacturers. For example, while the League of Nations and a Committee of Neutrals in Washington were striving to terminate the conflict between Bolivia and Paraguay,¹ European and American armament firms were furnishing virtually all the war materials used by both belligerents in the Chaco hostilities. In the Leticia dispute between Colombia and Peru, the efforts of the League were also obstructed by shipments of war materials from four or five of the large arms-producing countries.

The part played by private armament industries in these recent international conflicts has focused public attention on the larger problem of the manufacture and trade in arms—a problem which has been under discussion at the World Disarmament Conference.

SCOPE OF WORLD TRADE IN ARMS

In accordance with Article VIII of the League Covenant, information on trade in arms and ammunition is compiled by the League of Nations in a statistical yearbook covering the trade of 59 countries and 49 colonies.² At the present time, however, there is no international and universally adopted system of classification, a fact which makes it exceedingly difficult to compare the trade of different countries or to trace exports to their final destination. The statistics, moreover, are invariably out of date at the time of publication. Nevertheless, the League publications provide the only basis for gauging the extent of the international traffic in arms. The total value of world trade in war materials between 1921 and 1930 has exceeded \$600,000,000. League figures³ show the total value of exports from

all countries to have been as follows:

1921	\$42,811,275
1922	42,452,413
1923	39,419,100
1924	45,702,200
1925	48,102,200
1926	51,105,400
1927	48,060,400
1928	59,239,000
1929	64,091,000
1930	55,201,500

These figures do not include military aircraft or war vessels and other naval armaments, nor do they give any indication of the total production of war materials or the total output of the privately controlled arms industry—which is many times the amount of arms exports.

The large-scale manufacture of war materials is limited to some ten industrial countries. These ten countries supplied 93.2 per cent of the total exports of arms and ammunition recorded in 1930. The distribution of world trade in arms among these countries is shown in the following table:⁴

	<i>Per cent of total exports in 1930</i>
Great Britain	30.8
France	12.9
United States	11.7
Czechoslovakia	9.6
Sweden	7.8
Italy	6.8
The Netherlands	5.4
Belgium	4.4
Denmark	1.9
Japan	1.9

It will be noted that 55 per cent of the total world exports in 1930 came from three countries—Great Britain, France and the United States. The private arms industries of these three countries, moreover, have been the source of approximately 75 per cent—more than \$459,000,000—of all the war materials exported since 1920.

Chief European Exporting Countries

More significant than the total value of the traffic in arms is the distribution of this trade among the chief exporting countries. As only the larger states have facilities for supplying all their domestic armament needs even in times of peace, the potential market for war materials embraces most of the

4. Compiled from *Statistical Year-Book, 1932*, cited.

1. John C. deWilde, "South American Conflicts," *Foreign Policy Reports*, May 24, 1933.

2. League of Nations, *Statistical Year-Book of the Trade in Arms and Ammunition* (Geneva, 1933), C.92.M.35.1933.IX.; previous volumes published annually, 1926-1932.

3. League of Nations, *Statistical Year-Book of Trade in Arms, Ammunition & Implements of War* (Geneva, April 1932), C.37.M.35.1932.IX., p. 166; also yearbooks for 1930, 1928.

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smaller European countries, virtually all of South America and Africa, and most of Asia. Each of the big producing countries has developed its own colonial markets and captured a share of the foreign trade, sometimes on the basis of military treaties and alliances.

British armament exports increased from \$12,018,500 in 1921 to \$21,727,400 in 1929; in 1930 they fell off to \$17,019,300.⁵ The great Vickers-Armstrongs firm and other British concerns have enjoyed a virtual monopoly in the colonial trade, supplying from 60 to 95 per cent of the war materials imported by British colonies and the Dominions, with the exception of Canada.⁶ British products have also found markets in some forty foreign countries, which have absorbed almost half the British armament exports. According to British export figures, the largest foreign buyers of British-made arms in recent years have been Japan, China and the South American countries. In South America, British firms executed relatively large armament or ammunition orders for Chile in 1928 and 1929, for Bolivia in 1929 and 1930, and smaller orders for Argentina, Brazil, Colombia and Uruguay between 1925 and 1930.⁷ On the Continent Great Britain's best customers have been Spain, Greece and Holland. In 1929 and 1930 British firms carried out two large armament orders for the Spanish government, amounting to more than \$6,000,000 in all. Other countries which have relied largely on British firms for their supplies of war materials are Egypt, Persia and Siam.

Official figures give only a fragmentary picture of the British arms shipments to the Far East and South America. Statements made in the House of Commons, however, reveal that during 1932 British firms sold 7,735,000 rounds of small arms ammunition to China and 5,000,000 rounds to Japan, as compared with a total of 3,718,000 rounds for all foreign countries in 1930.⁸ Since 1926 Japan has been one of Great Britain's largest purchasers of automatic machine guns, buying 1,220 guns from British firms during these four years. In 1932, however, British factories exported 740 machine guns to Japan—almost double the number exported in the previous year.⁹ In March 1933 Great Britain exported 300 additional machine guns to Japan. Shipments were at the same time being made to China, British firms exporting 61 machine guns to that country in 1932. Commenting on this fact in the House

of Lords, Lord Marley declared that British armament firms had shown "complete impartiality" during the year in supplying arms to both Japan and China.¹⁰

The French trade in arms, while considerably less than the British, aggregated \$124,658,900 in the decade between 1920 and 1930.¹¹ During the years immediately after the World War all the great powers sold large quantities of their surplus war stocks to the smaller countries and new states created by the treaties of peace. In 1920 France's sales chiefly to its European allies, totaled \$33,051,200.¹² By 1922 French armament exports had fallen to \$9,590,000; in 1924 they rose to \$12,228,000; they declined to \$4,629,000 in 1927, but increased to \$8,000,000 in 1928, \$9,000,000 in 1929 and \$7,000,000 in 1930.¹³

Belgium, which concluded a military alliance with France in 1920, purchased 80 per cent of all its imported armaments in 1923 from France and has been a large purchaser in other years. In 1929 Rumania, a member of the Little Entente, purchased 94 per cent of all imported war materials from France, and in 1922 and 1923 more than 75 per cent of its imports came from French firms. In 1927 Poland, with which France has a military alliance, bought 58 per cent of its armaments in France.¹⁴

During 1932 the value of France's arms exports increased more than 300 per cent over 1931, totaling \$9,726,000—the largest total for any year since 1924.¹⁵ The largest increases for the year went to Argentina, Brazil, China, Poland and Yugoslavia, as shown in the following table:

	(in thousands of francs)	
	1932	1931
Argentina	44,744	11,805
Brazil	13,837	3,352
China	15,561	3,101
Poland	51,764	10,683
Yugoslavia	7,865	39

Despite the fact that official French figures list no exports to Japan, reports persisted throughout 1932 that leading French firms, notably Schneider-Creusot and Hotchkiss, were filling large orders for that country.

Czechoslovakia is the third great arms exporting country of Europe. Exports from Czechoslovakia have increased more rapidly than those of any other country. In 1921 Czechoslovakia's exports amounted to only

10. Great Britain, *Parliamentary Debates*, House of Lords, December 8, 1932.

11. Compiled from *Statistical Year-Book*, 1928, 1930, 1932, cited.

12. Compared with \$62,392,200 sold by the United States, and \$20,105,400 by Great Britain.

13. Cf. Appendix, table II.

14. *Statistical Year-Book*, 1927, cited.

15. *New York Times*, February 14, 1933; cf. also *Statistical Year-Book*, 1930, 1932, cited.

5. *Statistical Year-Book*, 1932, cited, p. 116.

6. *Ibid.*

7. *Ibid.*, p. 347-49.

8. Great Britain, *Parliamentary Debates*, House of Commons, February 14, 1933, p. 782-84; Cf. also *Statistical Year-Book*, 1932, cited, p. 338-47.

9. *Ibid.*; and *Ibid.*, p. 338.

\$610,000. In 1924 they rose to \$2,525,000, and in 1926 they reached the high point of \$8,296,000, dropping off in 1928 to \$2,160,000. By 1930, however, they had again risen to \$5,274,000. As in the case of France, Czechoslovakia has furnished armaments to its political allies, notably Yugoslavia and Rumania, both members of the Little Entente, and Poland. According to Czechoslovakian export figures, the Skoda Works carried out large orders for artillery and small firearms for Yugoslavia in 1926, 1927, 1929 and 1930 — totaling more than \$9,000,000.¹⁶

American Arms Exports

In total value of exports since 1920 the United States is second to Great Britain, with foreign sales of arms and ammunition amounting to \$155,510,100. American exports increased steadily from \$6,928,000 in 1921 to \$10,734,000 in 1929. In 1930, the first year of the depression, exports fell off to \$6,462,000; in 1931 they declined sharply to \$2,926,000, while in 1932 they increased slightly to \$2,950,000.¹⁷

Canada has been the largest single purchaser of arms from the United States, importing more from this country than from Great Britain. American firms have been the chief source of supply for Mexico and the small Central American countries—Guatemala, Honduras, Salvador, Nicaragua and Costa Rica. Several South American countries have placed relatively large orders with American firms. In 1929 one American firm furnished 348 machine guns valued at \$225,000 to Argentina, and made smaller sales to Cuba and Paraguay. Argentina, Brazil, Chile and Bolivia have all purchased small amounts of firearms and ammunition from American firms.

The United States has not exported large quantities of war material to Japan and China, although arms shipments to Japan increased during the recent hostilities. Apparently the small quantity of exports to the Far East is due to the higher prices of American manufactured arms. In 1931 the total value of firearms, ammunition, aircraft and explosives exported to Japan amounted to \$147,213—of which \$135,000 was for aircraft and parts. In 1932 American exports to Japan increased to \$371,635—of which \$346,000 was for aircraft and parts.¹⁸ Exports to China, on the other hand, amounted to \$1,115,797 in 1931, of which \$913,000 was for aircraft and parts. In 1932 exports to China dropped to \$205,315.

16. *Statistical Year-Book, 1932*, cited, p. 400-401. These shipments, however, are not accounted for in the armament imports reported by Yugoslavia.

17. Cf. Appendix, table II.

18. U. S. Department of Commerce, Iron and Steel Division, Release, February 27, 1932.

Discrepancies Between Imports and Exports

A useful check on the distribution of world trade among the producing countries is afforded by the import statistics of the large consuming states. The import figures reveal many startling discrepancies, due in part to the different systems of classification. How great these discrepancies are is shown by the fact that total exports of arms and ammunition between 1920 and 1930, as compiled by the League, amounted to \$616,000,000 while total imports were valued at only \$478,000,000—a difference of \$138,000,000. Total exports should, of course, equal total imports, yet there is no satisfactory explanation of this large surplus of exports—a discrepancy which is found in the figures of almost every country.

The greatest discrepancy is found in the case of Germany. Under the Versailles Treaty Germany is forbidden to import or export war materials of any kind, and production of armaments is strictly limited to the requirements of the German armed forces.¹⁹ Nevertheless, German exports of arms and ammunition have increased from approximately \$2,000,000 in 1924 to \$3,000,000 in 1930. Presumably this trade is confined to firearms for sporting purposes, explosives for commercial use, or arms and ammunition in transit. This explanation is accepted in the League *Statistical Year-Book* which contains export statistics compiled from German foreign trade reports.²⁰

Serious doubt, however, is thrown on this explanation by the import figures of consuming countries, a surprising number of which report heavy imports of arms and ammunition from Germany. In 1929 no less than thirteen countries, including China, Japan, France, Spain and Belgium, reported Germany as their chief source of supply for arms and ammunition. In 1930, 22 countries reported that Germany was the first or second largest source of supply. Their arms purchases amounted to \$7,541,544—more than twice the total value of German exports to all countries as shown in German export figures.²¹ Furthermore, many of the importing countries include weapons and ammunition for military purposes in their imports from Germany. The implication is that, despite the prohibitions of the Versailles Treaty, Germany is one of the chief arms exporting countries of the world.

Both Japanese and Chinese customs figures give Germany as the largest source of supply in recent years. In 1930 Germany was the source of 48.1 per cent of arms and

19. *Treaty of Versailles*, Part V, Article 170.

20. *Statistical Year-Book, 1932*, cited, p. 7.

21. Compiled from *Statistical Year-Book, 1932*, cited.

54 per cent of ammunition reported by Japan. Chinese sources list Germany as the chief country of origin for arms and ammunition between 1925 and 1927, when more than 50 per cent of all imports came from Germany. In 1930, just before the outbreak of the Manchurian conflict, Japan furnished 37.5 per cent of all arms and ammunition imported by China, and Germany 25.7 per cent.

MANUFACTURE OF ARMS AND AMMUNITION

Hundreds of millions of dollars are spent annually on war materials. In 1930 the total cost of maintaining the armies and navies of the world amounted to \$4,500,000,000,²² a large proportion of which was used for the purchase or manufacture of armaments. Approximately 15 per cent of army budgets, and 40 to 50 per cent of naval and air budgets are spent on arms, ammunition and fighting material.²³

War materials used by the armed forces come from three separate sources: (1) factories owned by the state, such as military arsenals and naval dockyards; (2) factories subsidized by the state or under state control or supervision; (3) private firms engaged in whole or in part in the manufacture of arms, ammunition and instruments of war. Of these three sources, private firms are without doubt the most important. In 1932 a subcommission of the Disarmament Conference sent a questionnaire to all governments asking for the number of state-owned, state-subsidized and private firms engaged in the production of war materials. Replies were received from 40 countries.²⁴ According to these replies, 25 countries maintain state-owned arsenals or dockyards for the manufacture of some type of war material. Not more than three or four of these countries own state factories with adequate facilities for large-scale production of all types of heavy ordnance, naval vessels and ammunition for artillery. Great Britain, the United States, France, and possibly the Soviet Union operate such state factories; yet even these countries, with the exception of the Soviet Union, rely on private industry for much of this material. All other countries depend almost entirely on private industry, or imports from abroad.

Of the 40 governments replying to the questionnaire, only half have private arms factories or subsidized firms within their

borders. In not more than four or five of these countries are private industries large enough to produce modern weapons of all kinds. This means that the great majority of countries are dependent not only on private industry for the production of armaments, but on the private industry of four or five great industrial states.

There are no well defined limits to the "armament industry."²⁵ In war time the industry embraces thousands of private manufacturers normally engaged in civil production. In time of peace only a relatively small number of these firms are engaged—and few exclusively—in the manufacture of war materials. A large number are engaged in other branches of production, such as industrial equipment, steel production, agricultural machinery, electrical and chemical products, commercial shipbuilding, etc.

The Armament Industry Abroad

With the disarmament of Germany, the British armament industry has become the most powerful and most highly organized in the world,²⁶ as well as one of the most centralized. The largest arms and ammunition factories are controlled by the vast interests of Vickers, Ltd., a corporation engaged in industrial activities of all kinds and capitalized at more than £16,000,000. The leading company of Vickers, Ltd., is Vickers-Armstrongs, organized in 1927 through the amalgamation of the two largest—and hitherto independent—armament and shipbuilding companies, Vickers and Armstrongs. The combined activities of these companies embraces every phase of armament manufacture, as well as shipbuilding, naval construction, steel manufacture and general engineering. The chairman of Vickers, Ltd., recently declared that "Vickers-Armstrongs depends very largely on armament orders for its existence, while the capacity of its works for armament production is an important factor in the defense of the country."²⁷ Vickers-Armstrongs sells the largest part of its armament output to the British government, but also sells abroad and has international connections in several foreign countries.²⁸

25. Few adequate books or pamphlets are available on this subject. The best known include: *The Secret International*, published by the Union of Democratic Control (London, 1932); G. H. Ferris, *The War Traders* (London, 1914); *The International Industry of War*, published by the Union of Democratic Control (London, 1915); J. T. Walton Newbold, *The War Trust Exposed* (London, 1916); Lehmann Russbult, *War for Profits* (New York, 1929).

26. The British reply to the questionnaire submitted to governments by the Disarmament Conference contained no information on private arms industry, on the ground that even the largest companies were not engaged wholly or primarily in the manufacture of armaments. Cf. *Progress Report*, Conf. D. 160, cited.

27. Statement of Sir Herbert Lawrence at 65th annual meeting of Vickers, Ltd., *The Times* (London), April 5, 1932, quoted in *The Secret International*, cited, p. 14.

28. For the history and international ramifications of Vickers, Ltd., cf. *The Secret International*, cited.

22. William T. Stone, "The Burden of Armaments," *Foreign Policy Reports*, December 9, 1931.

23. This estimate is based on the official expenditures for land, naval and air forces submitted to the League of Nations in 1930. Cf. *Particulars Concerning the Position of the Armaments of the Different States* (Geneva, 1931).

24. League of Nations, Conference for the Reduction and Limitation of Armaments, Committee for the Regulation of the Trade in and the Private and State Manufacture of Arms and Implements of War, *Progress Report*, Conf. D. 160 (Geneva, 1933). For summarized table, cf. Appendix, table I.

Vickers, like other armament firms, has developed a close, although unofficial, relationship with the government through the appointment of former military and naval officers to their Board of Directors or technical staff. The chairman of Vickers, Ltd., is General Sir Herbert Lawrence, formerly a Chief of Staff, Headquarters British Army in France. Five or six other directors either have served in the Army or Navy or held important posts in the Ministry of Munitions during the war.²⁹

The French armament industry, like that of Great Britain, is highly centralized and is closely linked with the powerful industrial union known as the *Comité des Forges*, which has been a powerful influence in French politics. M. François Wendel, president of the *Comité des Forges*, is a member of the French Chamber of Deputies and is said to hold a controlling interest in two influential nationalist newspapers in Paris—*Le Journal des Débats* and *Le Temps*.³⁰ One of the largest firms in the *Comité des Forges* is Schneider-Creusot & Cie., which operates the best equipped arms factories on the Continent. It produces heavy ordnance, artillery, small arms and ammunition for the French government, and its armaments are sold throughout the world. It also has international connections and is linked indirectly with the Skoda Works of Czechoslovakia, another big producer of armaments. The chairman of Schneider-Creusot, M. Eugène Schneider, is a member of the Skoda board and president of the *Union Européenne Parisienne*, a bank which holds a controlling interest in the Skoda Works.

The second largest French armament firm is Hotchkiss & Cie., owned in part by British interests. In addition, there are 77 smaller arms and ammunition firms in France; 21 aircraft factories and 6 engine factories engaged in the production of engines for civil and military airplanes.³¹ Several of the largest aircraft factories are combined under the *Société Générale Aeronautique*, founded in 1930.

The principal armament factories of Central Europe are operated by the Skoda Company in Czechoslovakia. Skoda is not primarily an armament firm, but its arms

factories in Pilsen, Prague and Bro manufacture heavy guns, rifles, machine guns and ammunition. Skoda also produces airplanes and airplane engines. It has factories in Poland and holds a controlling interest in the Warsaw firm which manufactures airplane engines. As noted above, a controlling interest in the Skoda works is held by Schneider through the *Union Européenne Parisienne*.

Another large private armament firm in Europe is the S. A. Bofors Company of Sweden.³² This concern operates large-scale ordnance factories and shipyards, and until quite recently has exported large quantities of arms and ammunition to The Netherlands, Central Europe and the Far East. It is alleged that in 1927 the German firm of Krupp—whose armament business was suppressed by the Versailles Treaty—acquired an important share in the Bofors Company.³³

The other leading armament firms in Europe are located in Italy, Holland and Belgium. The largest Italian companies operate under concessions from the government and produce most of the war materials used by the Italian army and navy. Their exports are relatively small, although they have been involved in shipments to Austria and Hungary which brought forth a sharp protest from Great Britain and France.³⁴ Japan is the only other country with a large private industry. The Mitsui firm is closely affiliated with the big industrial interests in Japan. It is associated with the Nippon Steel Works, which is said to be connected with Vickers, Ltd.³⁵

Armament Industry in the United States

The United States has no single large armament corporation comparable to Vickers-Armstrongs in England or Schneider-Creusot in France. Instead, there are a large number of competing firms engaged in various branches of the armament and shipbuilding industry, and capable of almost unlimited expansion in time of war. During the World War thousands of firms participated in the manufacture of war materials for the government and the Allies. The War Department entered into more than 100,000 contracts with private industry for supplies and materials of all kinds, and the Ordnance Department alone spent nearly \$6,000,000,000 for arms and ammunition.³⁶ Approximately

29. *The Secret International*, cited, p. 30. Vickers, Ltd., the controlling corporation, has many other subsidiaries, some of which are engaged in armament manufacture. These include William Beardmore, Ltd., formerly an independent armament concern, and Vickers Aviation, Ltd., which manufactures aircraft for civilian and military purposes. Other firms engaged in the manufacture of armaments include the shipbuilding firms of Yarrow & Co., Ltd., and the Palmer Shipbuilding and Engineering Co. The firm of Cammel Laird and Co., Ltd., formerly a large armament concern, is now associated with Vickers, Ltd., in the English Steel Corporation. The largest British aviation concern is the Fairey Aviation Co., Ltd. Other firms include the de Havilland Aircraft Co., Ltd., which has subsidiary companies in Australia, Canada, India and South Africa.

30. *Ibid.*, p. 20.

31. For reply of the French government to the disarmament questionnaire, cf. *Progress Report*, Conf. D. 160, cited.

32. For reply of the Swedish government to the disarmament questionnaire, cf. *ibid.*

33. Russbult, *War for Profits*, cited.

34. Cf. the Hirtenberg arms scandal, *New York Times*, February 21, 23, 1933.

35. *The Secret International*, cited, p. 24.

36. United States, *War Expenditures, Hearings*, Serial 1, Vol. III (Washington, Government Printing Office, 1919), p. 585.

95 per cent of ordnance used by the War Department was furnished by private industry.

Although most of these concerns abandoned production of war material after the Armistice, the War Department has kept in close contact with potential arms producers. As an important part of its huge industrial mobilization plan, the War Department has surveyed the facilities of 15,000 large plants and factories throughout the country and, in its plans, has assigned the definite task which each firm is to carry out in an emergency;³⁷ this is known as the "factory plan." Several years ago the War Department sought authority from Congress to issue "educational orders" to these firms so that they might have actual experience in the production of material assigned to them under the plans,³⁸ but Congress failed to authorize these orders.

The War and Navy Departments are naturally concerned about their source of supply in time of war, and seek to assist the private firms on which they must depend for ordnance and other war materials. Thus the Navy Department has followed the practice of awarding more than half of its large contracts for naval vessels to private firms, even though private bids are frequently higher than bids submitted by government-owned navy yards.³⁹ Government arsenals, which are equipped to manufacture gunpowder, also purchase large quantities from private firms.

The Bethlehem Steel and du Pont Companies

Before the war the Bethlehem Steel Corporation was one of the largest manufacturers of armament in the world. Through its subsidiaries it operated complete ordnance works, gun foundries, armor plate works, and shipbuilding plants, and manufactured war materials and battleships for the United States and other governments. For the single item of armor plate between 1887 and 1915 the Bethlehem companies secured contracts from the United States government amounting to \$42,000,000.⁴⁰ The Bethlehem Shipbuilding Corporation under the 1916 naval program received \$134,000,000 for construction of 85 destroyers. At the time that this company was building

ships for the American Navy it was also filling orders for foreign governments: in 1908 Bethlehem built five submarines for Japan; during the war it built 20 submarines for Great Britain; and in 1913 it constructed a battleship for Argentina.⁴¹

After the Armistice the Bethlehem Steel Corporation discontinued its largest ordnance works but continued in the armor plate and shipbuilding business. Today the parent company is a huge corporation with more than 50 subsidiaries which manufacture nearly a hundred different products. Its assets in 1930 were valued at \$719,760,000, with a working capital of \$119,000,000.⁴²

One of the oldest and largest subsidiaries of the Bethlehem Steel Corporation is the Bethlehem Shipbuilding Corporation, which specializes in the construction of naval vessels and large merchant ships. It was this company which, with two other shipbuilding firms, paid William B. Shearer \$25,000 to attend the Geneva Naval Conference in 1927.⁴³ After the failure of the conference, the Bethlehem Shipbuilding Corporation received contracts for three 10,000-ton cruisers for the Navy at a total cost to the government of approximately \$33,000,000. Since 1916 this company has built more than 100 vessels for the government, at a cost of more than \$250,000,000.

Another Bethlehem subsidiary is the Midvale Steel and Ordnance Company acquired in 1923. The Midvale Company was one of the leading firms in the pre-war armament "ring," manufacturing armor plate and ordnance.⁴⁴ It is still in the armor plate business and receives valuable contracts from the Army and the Navy.

Profits of the parent company and its subsidiaries were enormous during the World War. In 1915 its net income was \$24,821,000; in 1916 it jumped to \$61,717,000, and in 1917 and 1918 was above \$50,000,000. Gross earnings in 1918 reached the high mark of \$488,000,000. In 1929 the net income of the Bethlehem Steel Corporation was \$42,242,000, and it dropped to \$23,843,000 in 1930.

In the manufacture of explosives and smokeless powder the E. I. du Pont de Nemours Company is without a rival in the United States. This company was founded in 1802 for the production of explosives and has continued in business for more than a century and a quarter. Today it has assets of \$620,000,000 (1931); through its subsidi-

37. United States, 71st Congress, 2nd Session, War Policies Commission, Part II, *Hearings before the Committee appointed under the authority of Public Resolution 98*, (Washington, Government Printing Office, 1931).

38. United States, 69th Congress, 2nd Session, *Hearings before Committee on Military Affairs*, H.R. 14695 (Washington, Government Printing Office, 1929).

39. In 1928 the Puget Sound and Mare Island navy yards submitted bids of approximately \$7,000,000 and \$8,000,000 for 10,000-ton cruisers authorized in 1924. The Bethlehem Shipbuilding Corporation and the New York Shipbuilding Corporation bid more than \$10,000,000 for cruisers of the same type. Three of the cruisers were awarded to these private firms. United States, House of Representatives, 1927-28, *Hearings before the Committee on Naval Affairs* (Washington, Government Printing Office, 1928), p. 297.

40. *Congressional Record*, February 15, 1915, speech of Hon. Clyde H. Tavenner.

41. *Hearings before the Committee on Naval Affairs, 1927-28*, cited, p. 1291.

42. All figures on company assets, capital, income, etc., from *Moody's Industrials, 1932*.

43. United States Senate, 71st Congress, 1st session, "Alleged Activities at the Geneva Conference," *Hearings before a Subcommittee of the Committee on Naval Affairs* (Washington, Government Printing Office, 1930).

44. *Congressional Record*, February 15, 1915, speech of Hon. Clyde H. Tavenner.

aries it is engaged in producing chemicals, paints, varnishes, rubber goods, cellophane, rayon and countless other products. Production of gunpowder and explosives remains one of its important activities. It operates 16 explosive factories in the United States—largely for commercial explosives—and manufactures caps, fuses and smokeless powder for the United States and other governments. It owns large explosives companies in Mexico (Compañía Mexicana de Explosivos) and Chile (Compañía Sud-Americana de Explosivos) and holds a 47 per cent interest in Canadian Industries, Ltd., which manufactures and distributes chemicals and explosives in Canada. Among its many other subsidiaries are the American Nitrogen Company, the Old Hickory Chemical Company and Nobel Chemical Finishes.

The United States government has been du Pont's best gunpowder customer. Between 1905 and 1915, according to Representative Tavenner, the du Pont Company obtained contracts for smokeless powder amounting to \$25,000,000.⁴⁵ During the war powder production—and profits—reached astounding figures. In 1914 the du Pont Company produced 2,265,000 pounds of powder; in 1915 contracts began to come in from the Allies, and the du Pont Company turned out 105,000,000 pounds, mostly for export. In 1916 it produced 287,000,000 pounds. The United States entered the war, and production jumped to 387,000,000 pounds in 1917, and 399,000,000 in 1918.⁴⁶ A few years later, when Congress investigated war expenditures, it learned that the government had paid approximately 49 cents a pound to du Pont, with the cost of production estimated at 36 cents—a handsome profit. Gross income of the du Pont Company during the war reached \$318,845,000 in 1916 and \$329,121,000 in 1918. Against these figures normal peace-time contracts appear very small. Du Pont powder is still used by the Army and Navy, and du Pont profits depend in some measure on government business. From June 1931 to March 1933 the War Department alone awarded 46 contracts to the du Pont Company for smokeless powder and other products costing \$2,947,000.⁴⁷

The only large competitor of the du Pont Company in the manufacture of smokeless powder is the Hercules Powder Company of Wilmington, Delaware. The Hercules Company was organized in 1913 as the result of an anti-trust suit brought against the du

Pont Company by the government. The Hercules Company took over a number of the plants formerly operated by the du Pont corporation. During the war its gross receipts rose from \$15,715,000 in 1915 to \$63,419,000 in 1916. Its net earnings in the latter year were \$16,658,000. In 1921 the Hercules Company acquired the Aetna Explosives Corporation, its largest competitor outside of the du Pont Company. In 1930 the Hercules Powder Company showed gross receipts of \$25,906,000, with a net income of \$2,577,000.

Small Arms, War Vessels and Aircraft

No other private concerns engaged in the armament and shipbuilding business occupy quite the same position as the Bethlehem and du Pont corporations. The manufacture of rifles, machine guns, and small arms and ammunition is divided among some 40 firms, a majority of which manufacture firearms for sporting purposes, and other products. In 1929 the number of wage earners employed in the firearm and ammunition industries was approximately 15,000, and the total value of products was estimated at \$64,000,000; in 1931 the value of products fell to \$39,000,000.⁴⁸ Export to foreign countries varied from 8 per cent in the case of rifles to 11 per cent for cartridges and ammunition, and 17 per cent for pistols and revolvers.

The three private companies which were involved in the Shearer case—Bethlehem, Newport News Shipbuilding and Drydock Company and New York Shipbuilding Company—have divided among themselves most of the naval construction carried out in private yards for the United States government in recent years. Of the sixteen 8-inch-gun cruisers laid down between 1926 and 1932, three were built by the Bethlehem Shipbuilding Corporation, four by the New York Shipbuilding Company, and two by the Newport News Shipbuilding Company; the others were built in Navy yards. These firms have just been awarded contracts for 13 of the 21 war vessels to be built in private yards under the 1933 naval program, financed in large part from public works funds. The value of these contracts is approximately \$100,000,000 apportioned among the three firms as follows: Bethlehem, one heavy cruiser, four destroyers, \$27,304,000; New York Shipbuilding Company, two light cruisers, four destroyers, \$37,454,000; Newport News, two aircraft carriers, \$38,000,000. Four smaller firms were awarded the remaining eight vessels—destroyers and submarines—at a total contract price of approximately \$24,000,000.⁴⁹

The number of firms producing aircraft and parts, both for military and civil pur-

45. *Congressional Record*, February 15, 1915. Mr. Tavenner charged that the government had paid exorbitant prices for its powder, which could have been produced at far less cost in government arsenals.

46. United States, War Expenditures, *Hearings*, Serial 6, Vol. IV, p. 412-413.

47. Although the government arsenals are equipped to produce powder, \$2,420,000 was paid to the du Pont Company by the Frankfort and Picatinny arsenals in 1931-1933.

48. U. S. Department of Commerce, *Census of Manufacturers, 1929-1931* (Washington, Government Printing Office).

49. Cf. Appendix, table III, for list of shipbuilders.

poses, decreased from 132 in 1929 to 87 in 1931. In the latter year these firms employed an average of 9,643 wage-earners, and manufactured products were valued at \$34,876,000—a decrease of 40 per cent as compared with 1929.⁵⁰ The combined output of these firms totaled 2,308 airplanes and 119 seaplanes and amphibians.

Armament Firms and Legislation

A partial list of the principal firms engaged in the four major fields of armament production is given in the Appendix. Probably a majority of these firms are engaged only incidentally in the manufacture of war material. Some armament firms, however, have sought to obstruct disarmament efforts and defeat legislation intended to prohibit the shipment of arms and ammunition to belligerents. In 1933 a number of armament firms openly and covertly opposed passage of an arms embargo resolution, introduced by President Hoover and later supported by President Roosevelt, which authorizes the President to prohibit shipments of arms and ammunition, in cooperation with other countries, whenever such shipments might promote or encourage resort to force.⁵¹ Officials of the Winchester, Colt and Remington companies and the Stinson Aircraft Company appeared before the House Foreign Affairs Committee to oppose passage of this resolution, which they contended would only divert the trade in arms to other nations and reduce the trained staff available for production of war materials in the United States.⁵²

Another opponent of the arms embargo resolution who appeared before the Committee was Representative E. W. Goss of Connecticut. Mr. Goss was a former officer of the Scovill Manufacturing Company, a firm which manufactures brass goods and produced brass cartridge cases and fuses for the United States and foreign governments during the World War. Although Representative Goss is no longer an officer of the concern, the Goss family is intimately associated in its business and operations. Five members of the family are serving as officers and directors: E. O. Goss, president; J. H. Goss, G. A. Goss, C. P. Goss, Jr., vice-presidents; and W. M. Goss, secretary.⁵³

The only existing restriction on export of

arms from the United States is contained in a resolution adopted by Congress in 1922 giving the President power to declare an embargo on shipments to American republics and countries where the United States enjoys extraterritorial rights, and this authority applies only in the case of civil war or domestic disturbances. Embargoes have been invoked to prevent exports of arms to revolutionaries in Mexico, Cuba, Brazil, Honduras, Nicaragua and China.⁵⁴

INTERNATIONAL SUPERVISION OF ARMS TRAFFIC

Proposals for control of the traffic in arms have been under discussion for many years. The earliest restrictions on the arms trade were imposed by the Brussels Act of 1890, which prohibited the sale of firearms to African natives. Since then two international treaties have been signed, neither of which has come into effect. In 1919 the Paris Peace Conference sought to extend the provisions of the Brussels Act in the St. Germain treaties, one of which prohibited sale of arms to individuals and regulated trade between governments by a system of licensing and publicity. In 1925, following the failure of the United States to ratify the St. Germain Treaty, the League of Nations called a conference at Geneva in which the United States participated. The resulting treaty, providing for import and export licenses on all trade in arms between governments and full publicity, was signed but not ratified by the United States.⁵⁵ In 1929 the Preparatory Commission for the Disarmament Conference drew up still another treaty, in the form of a draft convention to be submitted to the conference as a basis for discussion. This treaty extended the provisions for licensing and publicity to cover the manufacture as well as the trade in arms.

In 1921 the Temporary Mixed Commission, after investigating the traffic in arms, reported the following objections to private manufacture:⁵⁶

1. That armament firms have been active in fomenting war scares
2. That armament firms have attempted to bribe government officials
3. That armament firms have disseminated false reports concerning the military and naval programs of various countries in order to stimulate armament expenditures.
4. That armament firms have sought to influence public opinion through the control of newspapers
5. That armament firms have organized international armament rings through which the armaments race has been accentuated by playing off one country against another.

50. *Census of Manufacturers, 1931*, cited, release of June 28, 1932.

51. United States, 72nd Congress, 2nd session, *Hearings before the Committee of Foreign Affairs on H. J. Resolution 580* (Washington, Government Printing Office, 1933).

52. *Ibid.*

53. In 1916, when the Scovill Company was producing brass and fuses for the Allies and the American government, it showed a gross income of \$15,824,000. Although the firm discontinued manufacture of "munitions" after the Armistice, it retained its business relations with the War Department and was awarded a large number of contracts for brass materials, cartridge cases, etc. Between July 1931 and March 1933 the Scovill Company was awarded 23 contracts by the Ordnance Department of the Army amounting to \$133,000.

54. *Hearings before the Committee of Foreign Affairs on H. J. Resolution 580*, cited.

55. For a summary of the St. Germain treaties and the 1925 convention, cf. "United States and the St. Germain Treaties," Foreign Policy Association, *Information Service*, January 4, 1929.

56. League of Nations, *Report of Subcommittee of the Temporary Mixed Commission*, Doc. A.81 (Geneva, 1921).

The Commission, however, did not recommend abolition of private manufacture and reached no conclusion as to how effective supervision could be established.

During the past year the Disarmament Conference has made a further effort to establish international supervision over the traffic in arms, but without conspicuous results to date.

Abolition of private manufacture was proposed by France, Poland, Denmark and Spain. The delegations from these countries declared that "the evil effects of private manufacture could not be removed" without the total suppression of private firms engaged in the manufacture of war materials.⁵⁷ The United States, Great Britain, Belgium, Germany, Italy and Japan opposed the suppression of private manufacture on the ground that the dangers from abolition would be greater than those under private manufacture. On May 27, however, France submitted a definite proposal for control of the manufacture and trade in war material.⁵⁸ This French plan provides for quotas within which each country must limit its manufacture or importation of arms and ammunition. It would prohibit private manufacture, except under state supervision or control, and would require all countries to adopt licenses for manufacture and export of arms. Action on this plan, as on the question of abolishing private manufacture, awaits the reconvening of the Disarmament Conference in October.

57. *Progress Report*, Conf. D. 160, cited, p. 6.

58. *League of Nations*, Conf. D., C.C.F.41.

CONCLUSION

Several conclusions may be drawn from the available information on the traffic in arms—conclusions which help to explain the failure to establish effective international supervision. First, all governments rely primarily upon private manufacturers for most of the arms and ammunition required for the armed forces. This reliance upon private industry is even greater in time of war, when the largest industrial nations are compelled to resort to the total mobilization of their national resources. It is not strange, therefore, that governments hesitate to suppress or to hamper by elaborate restrictions the activities of these private concerns. Second, a majority of governments are compelled to rely upon the private manufacturers of foreign countries—not more than four or five countries possessing industries equipped to produce all types of war material. The dependent countries, lacking the resources necessary to set up a complete armament industry within their borders, are reluctant to curtail their source of supply. Third, the armament industry itself is so intimately associated with governments, through the filling of government contracts, that it is in a position to influence the policy of governments on all questions affecting international supervision and control. Because of their financial interests, such firms have every incentive to resist efforts to establish international control and to use their influence to prevent such control.

APPENDIX

I. MANUFACTURE OF ARMS AND AMMUNITION¹

<i>Country</i>	<i>State-owned Plants</i>	<i>State-subsidized Plants</i>	<i>Private Plants</i>
Afghanistan	1 repair plant	none	none
Albania	none	"	"
Australia	2 arms & amm. plants 1 dockyard	"	1 airplane firm
Austria ²	1 army arsenal	2 amm. plants 1 powder plant	none
Belgium	2 arms, amm. & repair plants	none	6 arms & amm. firms 3 powd. & explosive firms
Bulgaria ²	1 arms & amm. plant	"	none
Chile	1 army arsenal	"	"
China	none	"	"
Denmark	7 army & navy arsenals, laboratories, workshops	"	3 arms & amm. firms
Egypt	none	"	none
Estonia	"	"	"
Finland	3 arms & amm. plants 1 airplane plant 1 naval dockyard	"	1 shipyard
France	18 arms, amm. & powder plants 6 naval artillery plants 4 naval construction plants	"	80 arms & amm. firms 21 aircraft firms 6 engine firms
Germany ²	1 naval dockyard	1 naval dockyard	particulars not given

<i>Country</i>	<i>State-subsidized Plants</i>	<i>State-owned Plants</i>	<i>Private Plants</i>
Greece	1 airplane plant ³	none	1 cartridge firm
Hungary ²	1 arms & amm. plant	3 small arms & cartridge plants	none
India	6 arms & amm. plants	none	"
Iraq	none	"	"
Irish Free State	"	"	"
Italy	9 army arsenals and powder plants 2 naval dockyards	2 arms plants 2 shipyards	particulars not given
Japan	particulars not given	particulars not given	"
Latvia	1 arsenal	1 amm. plant	none
Lithuania	2 repair plants	none	"
Netherlands	military arsenals	"	2 arms & amm. firms
New Zealand	none	"	1 small arms & amm. firm
Norway	4 arms & amm. plants 1 airplane plant 2 workshops 1 naval dockyard	"	1 projectile firm
Panama	none	"	none
Persia	particulars not given	particulars not given	particulars not given
Poland	4 arms & amm. plants 1 airplane plant	2	9 small arms & amm. firms
Portugal	1 arms & amm. plant	none	none
Rumania	3 arsenals ⁴ 1 air arsenal ⁴ 3 naval yards ⁴	1	5 small arms firms ⁴
Siam	2 repair plants	none	none
Sweden	2 munitions plants 2 dockyards 2 aircraft plants	"	5 arms, amm. & air firms
Switzerland	4 arms & amm. plants	"	4 arms & amm. firms 5 airplane & eng. firms
South Africa	1 aircraft plant	"	none
Turkey	arsenals under Ministry of National Defense	"	"
United Kingdom	5 arms & amm. plants 3 naval dockyards	"	particulars not given
United States	6 army arsenals 5 navy yards 5 naval ordnance and aircraft plants	"	60 arms & amm. and airplane firms
Venezuela	none	"	none
Yugoslavia	1 arsenal 1 aircraft plant	5 airplane plants	3 small arms & amm. firms 2 dockyards

1. Compiled from *Progress Report*, Conf. D. 160, cited.

2. Manufacture limited by treaties of peace.

3. Factory operated by a British aviation company under supervision of state.

4. Factory engaged primarily in repairs.

II. TOTAL EXPORTS, ARMS AND AMMUNITION, OF PRINCIPAL MANUFACTURING POWERS, 1920-1930¹

(in thousands of dollars)

	<i>Czechoslovakia</i>	<i>France</i>	<i>Great Britain</i>	<i>United States</i>
1920	419.9	33,051.2 ²	20,105.4 ²	62,392.2 ²
1921	610.2	18,680.4	12,018.5	6,928.2
1922	1,325.0	9,590.8	14,897.9	8,447.0
1923	1,317.7	8,000.9	14,538.5	9,267.6
1924	2,525.9	12,228.5	12,948.7	9,893.6
1925	897.3	7,165.2	16,550.4	10,676.0
1926	8,296.7	6,033.0	14,541.6	10,507.1
1927	3,800.6	4,629.5	15,388.0	9,476.7
1928	2,160.9	8,743.1	19,993.3	10,724.9
1929	3,197.3	9,374.5	21,727.4	10,734.5
1930	5,274.1	7,141.8	17,019.3	6,462.3
Total	29,825.6	124,638.9	179,729.0	155,510.1

1. Compiled from League of Nations, *Statistical Year-Book of the Trade in Arms and Ammunition*, C.37.M.21.1932.X. (Geneva, 1932).

2. Including sale of surplus war supplies.

III. PRINCIPAL MANUFACTURERS OF ARMAMENT IN THE UNITED STATES

FIREARMS AND AMMUNITION

- Colt's Patent Firearms Company**, Hartford, Conn., Incorporated 1885.
Principal products: machine guns, pistols, machine rifles, washing machines; engaged in export trade; U. S. Government contracts, 1932-33. Assets 1930, \$5,596,000; net income 1930, \$688,524; net income during war: 1916, \$6,847,000; 1917, \$7,572,000; 1918, \$6,318,000.
- Remington Arms Company**, Bridgeport, Conn. Founded 1816.
Principal products: firearms and ammunition for military and sporting purposes, cutlery; engaged in export trade; U. S. Government contracts, 1932-33. Subsidiaries in Canada and Great Britain; plants at Bridgeport, Conn., Ilion, N. Y., and Brinsdown, England; owns Union Metallic Cartridge Co. Net sales 1929, \$21,670,000; 1931, \$10,216,000; net earnings 1929, \$2,333,000; 1931, \$549,000.
- Winchester Repeating Arms Company**, New Haven, Conn. Owned by Western Cartridge Co., East Alton, Ill.
Principal products: firearms and ammunition for military and sporting purposes, cartridges; export trade; U. S. Government contracts, 1932-33. Affiliated with Equitable Powder Mfg. Co., Egyptian Powder Co., Western Powder Mfg. Co., producers of gunpowder and explosives; Winchester net earnings: 1928, \$2,161,335; 1929, \$1,950,000; 1930, \$875,700.
- Savage Arms Corporation**, New York.
Principal products: cartridges, rifles, pistols, shotguns, washing machines, etc. Formerly manufactured Lewis machine guns.
- Auto Ordnance Corporation**, New York.
Portable automatic guns; U. S. Government contracts, 1932.
- Driggs Ordnance and Engineering Company**, New York.
Principal products: Light artillery, naval ordnance, special ammunition.
- Smith & Wesson**, Springfield, Mass.
Principal products: revolvers and pistols.
- Johnson's Arms & Cycle Works**, Fitchburg, Mass.
Principal products: small arms, largely for sporting purposes, cartridges, bicycles.
- Marlin Firearms Company**, New Haven, Conn.
Principal products: rifles and shotguns.
- Sedgely, R. F., Inc.**, Philadelphia, Pa.
Principal products: rifles and pistols.
- Pacific Arms Corporation**, San Francisco, Cal.
Principal products: small arms, cartridges.
- Woodstock Manufacturing Company**, Charleston, S. C.
Principal products: light ordnance.
- Other small firms are located in Michigan, Massachusetts, New York and Pennsylvania.

SHELLS, CARTRIDGES AND AMMUNITION

- Western Cartridge Company**, East Alton, Ill.
Principal products: shells and cartridges; U. S. Government contracts, 1932-33. Owns Winchester Arms Co., Equitable Powder Mfg. Co., Egyptian Powder Co., Western Powder Mfg. Co.
- Federal Cartridge Corporation**, Minneapolis, Minn.
Principal products: shells and cartridges; U. S. Government contracts, 1932.
- King Powder Company**, Cincinnati, Ohio.
Principal products: shells and cartridges, explosives; U. S. Government contracts, 1932.
- Peters Cartridge Company**, Kings Mills, Ohio.
Principal products: shells and cartridges; U. S. Government contracts, 1932.
- Hoffman & Bryan**, Findlay, Ohio.
Principal product: torpedoes.

EXPLOSIVES AND GUNPOWDER

- E. I. du Pont de Nemours Company**, Wilmington, Del. Government contracts, 1933.
- Hercules Powder Company**, Wilmington, Del. U. S. Government contracts, 1933.
- Western Powder Mfg. Company**, Peoria, Ill.
- King Powder Company**, Cincinnati, Ohio.
- Moore, du Val & Co.**, San Francisco, Cal.

NAVAL CONSTRUCTION AND REPAIR

- Bethlehem Shipbuilding Corporation**, Quincy, Mass. Subsidiary of Bethlehem Steel Co.; plants at Fore River, Mass., Baltimore, Md., Wilmington, Del., San Francisco, Cal.; war vessels and merchant ships for U. S. and foreign governments.
- Newport News Shipbuilding and Drydock Company**, Newport News, Va. War vessels and merchant ships. Constructed 321 vessels since organized in 1890; more than 35 ships for U. S. Navy, 1911-1932.
- New York Shipbuilding Company**, Camden, N. J. Acquired 1933 by E. L. Cord interests, manufacturers of automobiles, airplanes, etc. War vessels and merchant ships. Constructed 32 war vessels for U. S. Government since 1899; one for Argentina, 1911-1913; one for Greece, 1912.

The following firms were awarded contracts on naval vessels authorized in 1933:

- Bath Iron Works Corporation**, Bath, Maine; 2 destroyers.
- Electric Boat Company**, Groton, Conn.; 2 submarines.
- Federal Shipbuilding and Drydock Co.**, Kearney, N. J.; 2 destroyers.
- United Drydocks, Inc.**, New York; 2 destroyers.

AIRPLANES AND AERONAUTICAL PRODUCTS

- Curtiss-Wright Corporation**, New York. Organized as holding company for Curtiss-Wright properties. Principal subsidiaries: Curtiss Airplane and Motor Company; Curtiss-Wright Airplane Co.; Keystone Aircraft Corporation. Manufactures large bombing planes for U. S. Government; Moth Aircraft Co., under contract with de Havilland Co., England; Curtiss-Caproni Corporation, under contract with Caproni Co., Italy; Curtiss-Reid Aircraft Co., Ltd., Canada; Wright Aeronautical Corporation, connected with Hispano-Suiza Airplane and Motor Co.
- Principal products: airplanes, engines and equipment for civil and military use. Government contracts.

- Stinson Aircraft Corporation**, Wayne, Mich.
Principal product: airplanes for civil and military use.
- United Aircraft and Transport Corporation**, New York, subsidiaries: Boeing Airplane Co., Change Vought Corporation, Pratt and Whitney Aircraft Co., Skirsky Aviation Corp.
Principal products: airplanes and engines.
- General Aviation Manufacturing Corporation**, subsidiary of General Motors Corp. Associated with Bendix Aviation Corporation and Allison Engineering Co.
Principal products: airplanes, seaplanes, amphibians, engines.
- Ford Motor Company**, Dearborn, Mich.
Principal products: motor cars, airplanes, engines.
- Bellanca Aircraft Corporation**, New Castle, Del.
- Lockhard Aircraft Company**, Burbank, Cal.
- Waco Aircraft Company**, Troy, Ohio.
- Glenn L. Martin Company**, Baltimore, Md.; commercial and military airplanes.
- More than 70 other concerns are engaged in production of airplanes and airplane engines.